NEWS REPORT

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Committee on Hearing and Bio-Acoustics

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THE Armed Forces–National Research Council Committee on Hearing and Bio-Acoustics, abbreviated as "CHABA", was organized in December 1952. In its organization and general objectives it resembles the Armed Forces–National Research Council Vision Committee. It provides a group of informed consultants who can answer questions in the general area of hearing and bio-acoustics directed to them from the Armed Forces. It also serves the needs of the National Academy of Sciences–National Research Council in the same area and, when it was formed, actually absorbed the pre-existing Academy–Research Council Committee on Hearing.

Military problems of noise have become more and more acute with the development of high-performance aircraft and particularly with the development of jet engines and their afterburners. The high-intensity noise of these powerplants has led to two problems of somewhat different character, both of great importance and high priority. One of these is the reaction of people living or working in noisy areas, such as areas near airports or engine test facilities. As the intensity of the noise at the source is increased, more and more people are affected by it. Here is a broad problem which involves both civilian and military interests and points of view and not merely the strictly military problem of safe and efficient conduct of operations. The second class of problem is the immediate and also the chronic effects of very intense noise on the men engaged in the maintenance of such aircraft, particularly the members of flight-deck crews of aircraft carriers. A third important problem, less directly military in character, is the hearing loss caused by industrial noise.

In 1945 a proposal to form a hearing committee modeled after the Vision Committee was discussed at a "sound conference" held under military auspices at the submarine base at New London, Conn. No joint committee was formed at that time but the conference did stimulate the formation of the Committee on Hearing of the Academy–Research Council. The latter was an interdisciplinary group, not concerned primarily with medicine or surgery but rather with auditory problems such as standards of hearing for military men, methods and standards for audiometry, the evaluation of research projects on hearing for the Committee on Veterans Medical Problems, and more recently medical and medico-legal questions arising from industrial noise. The membership of the Committee on Hearing included doctors, psychologists, physicists, and engineers. This committee was attached to the Division of Medical Sciences of the National Research Council.

By 1951 it was recognized that on the flight deck of aircraft carriers noise was threatening operational procedures by interfering with communication and perhaps by causing hearing losses, chronic fatigue, and possibly other unknown effects. Early in 1952, a survey was made aboard the U. S. S. *Coral Sea* by Lt. Comdr. D. E. Goldman and E. S. Mendelson. Their report, which pointed out the reality and seriousness of the problems of noise, was referred to the Academy–Research Council Committee on Hearing which advised a survey of the facilities and personnel available in the United States for study of the problems of the effects of intense noise on man. A report, prepared by W. A. Rosenblith, D. E. Wheeler, and Comdr. H. Smedal, recommended among other items a short-term experimental study by an interdisciplinary group of scientists to make specific recommendations for further research.

In the autumn of 1952, representatives of the Departments of the Navy and the Air Force in the Research and Development Board recommended the formation of a joint Armed Forces–National Research Council committee to aid in the solution of the problems that could now be clearly recognized. The proposal was approved by the Governing Board of the Academy–Research Council on December 7, 1952, and an organizational meeting was held a week later.

The Executive Council of the new committee consists of nine members. Aram Glorig represents the Department of the Army, Henry A. Imus the Department of the Navy, and H. O. Parrack the Department of the Air Force. The three members appointed by the Academy–Research Council are R. H. Bolt, Director of the Acoustics Laboratory at Massachusetts Institute of Technology, *Chairman;* Harvey Fletcher, Director of Research at Brigham Young University; and Edwin B. Newman, Director of the Psychological Laboratories at Harvard University. Hallowell Davis, Executive Secretary of the Committee, and Howard House, University of California School of Medicine, are members-at-large, and one more member-at-large is still to be chosen.

The full Committee on Hearing and Bio-Acoustics consists of about sixty regular members approximately equally balanced between military representatives and civilians appointed by the Academy–Research Council. The latter appointments include "engineers and scientists . . . in the fields of acoustics, vibration, psychology, physiology, or medicine." There are also several affiliated members who represent other government agencies with interests in the general area.

"Bio-acoustics" in the name of the committee is used in a broad sense to designate the over-all problem of noise and man. This includes not only the direct non-auditory effects of high-intensity sound and vibration on man's body but also the relevant problems of noise generation, measurement, and control. The psychological and social reactions of men and of animals to noise are also included.

The area of interest to CHABA is defined in its by-laws as problems of a scientific and technical nature in the following areas: *a*) the effects and control of noise, *b*) auditory discrimination, *c*) speech communication, *d*) the fundamental mechanism of hearing, and *e*) auditory standards. CHABA reports to the Divisions of Physical Sciences, Medical Sciences, Anthropology and Psychology, Engineering and Industrial Research, and Biology and Agriculture of the National Research Council. So equally divided are the interests that the committee is responsible directly to the office of the Chairman of the National Research Council, although the administrative details of liaison, distribution of reports, etc., are carried out through the Executive Secretary of the Division of Anthropology and Psychology.

The funds for the operation of CHABA are provided by all three of the armed services equally. A contract for the operation has been written between the Office of Naval Research, which here acts as the agent for the three services, and the Central Institute for the Deaf. Therefore, the Secretariat of CHABA is located at the Central Institute for the Deaf in St. Louis.

The major work of CHABA is carried out by "working groups" of consultants

who deal with specific questions as they arise. At least one or two of the members of each working group are already members of CHABA, but often outside consultants are also invited to serve. Up to the present time (April 1954) a total of 13 working groups have been appointed and 11 of them have already submitted preliminary or final reports.

After a working group has prepared its report, the Executive Council has the responsibility for accepting and transmitting the report, either with or without corrections or additions. The committee as a whole meets at least annually, and if the timing of a report of a working group is favorable it is reviewed by the whole committee. Such review serves to inform the committee as to the background of its problems and also the policies and trends of future action. The discussion allows expression of points of view that may or may not have been represented in the working group. For some of the more complicated problems this is an important consideration, as it is easy for a group of specialists to miss some point that may actually be crucial for the problem as a whole.

CHABA is not a contracting agency. It does not dispense funds, although it may recommend that research along certain lines be carried out. It is not itself a research organization. Its output is not data but advice.

The most extensive job so far completed is the so-called Benox Report. This project, supported equally by the Departments of the Navy and the Air Force through a contract between the Office of Naval Research and the University of Chicago, was the implementation of the earlier recommendation for an interdisciplinary study of the biological effects of noise in a quick exploratory fashion. Experiments were conducted in the Bio-Acoustics Laboratory at Wright Air Development Center and most of the team also made a short cruise on an aircraft carrier.

The Benox report, published by the University of Chicago, contains specific recommendations for future research along many different lines. They were the main topic for discussion at the first annual meeting of CHABA held in October 1953. An additional commentary has been prepared by a CHABA working group discussing the operational impact of the findings of the Benox report. The commentary will shortly be published as the first report of the Committee on Hearing and Bio-Acoustics.

The topics for the second meeting of CHABA, scheduled for October 1954, are the propagation of sound in the atmosphere and the response of community inhabitants to noise. These are problems of particular concern to civil and military aviation.

Three topics of active interest to CHABA were inherited from the Academy-Research Council Committee on Hearing. One of these is the question of standards and methods of testing of hearing, and the second the relation of hearing loss to industrial noise. It is a general policy of CHABA not to duplicate activities where another competent organization is already at work. In the present instances the American Standards Association is already considering the question of international audiometric standards and likewise the possibility of safety standards and codes for industrial noise. The Executive Council of CHABA may appoint a working group that is co-extensive with an existing committee such as a writing group of the American Standards Association, and thereby promote and expedite the work. A notable example of such assistance occurred in conjunction with the exploratory group of the American Standards Association that recently produced a report on "The Relations of Hearing Loss to Noise Exposure."

Another organization with which CHABA is cooperating is the Subcommittee on Noise in Industry of the American Academy of Ophthalmology and Otolaryngology. This committee is gathering additional data and conducting field experiments in relation to the production of hearing loss by industrial noise.

The exact scope and the future emphasis of CHABA activities are both still somewhat uncertain and amorphous because of the breadth of the problems and the various and diverse interests of the individuals

who constitute the committee and its council. As yet there has been little emphasis on problems of communication. This apparent neglect is partly because much has already been done in this field and other groups are still active, but it may be that CHABA will soon be called upon for assistance. Also little has yet been done in relation to the reduction of noise at the source, which is obviously a very important aspect of the problem as a whole. CHABA has so far been more concerned with finding out how much noise man can endure, how it affects him, and how he may be protected or otherwise evade the effects.

CHABA will probably never be at a loss for subject matter because aircraft powerplants, guided missiles, and other noise sources will surely continue to increase in power. There are other very troublesome noise sources such as tanks, artillery, and firearms. In the industrial area it is possible that an increasing awareness of the costs of noise, both in dollars and in human disability, may lead gradually to a reduction of the intensity of industrial noise and of the exposure of personnel, but much must still be done in this area both to protect the individual and to specify satisfactory safety codes and standards.

SCIENCE NEWS

WOODS HOLE OCEANOGRAPHIC CONVOCATION

The dedication of the new Laboratory of Oceanography at Woods Hole, Mass., served as an introduction for the 3-day Oceanographic Convocation which followed from June 22 to 24. The Convocation was sponsored jointly by the National Academy of Sciences–National Research Council, the Office of Naval Research, the Marine Biological Laboratory, the Woods Hole Oceanographic Institution, and United States Fish and Wildlife Service. The scientific program was arranged by the Steering Committee under the chairmanship of Detlev W. Bronk, President of the National Academy of Sciences.

Under the general headings of Physical Oceanography, Biological Oceanography, Geology and Geophysics in Oceanography, and Meteorology in Oceanography, the sessions summarized the progress made in the various marine sciences and emphasized the relationships between them.

The two sessions on physical oceanography on the first day of the Convocation were concerned with applications of the physics of the sea to various other sciences and to military needs as well as with philosophical views on marine engineering and education. The second day was devoted to biological oceanography, and while the physical oceanographers dealt with philosophy and applications, the biologists turned to a more technical program in their discussion of the various forms of marine life and the factors affecting them.

On the morning of the final day of the Convocation, two of the newer aspects of oceanography, the geology and geophysics of ocean basins, were presented. The afternoon session was given over to a discussion of marine meteorology followed by a prepared discussion on the relationships between meteorology and oceanography.

On Tuesday evening, June 22, a special lecture on "The Role of Oceanography in Our Culture" was presented by G. Evelyn Hutchinson of Yale University. The other evenings were free for the different groups of scientists to hold informal discussion and to renew old acquaintanceships.

The following guests from abroad participated in the 3-day program:

H. E. Sverdrup, Norsk Polarinstituut, Norway
C. E. R. Deacon, Director, National Institute of Oceanography, England
Trygve Braarud, Universitetets Biologiske Laboratorium, Norway
L. H. N. Cooper, Marine Biology Laboratory, England
E. Steeman Nielsen, Danmarks Farmaceutiske Højskole, Denmark
Gunnar Thorson, Zoologiske Museum, Denmark
Eric Palmén, Institute for Meteorology, Finland

FREEDOM OF SCIENTIFIC RESEARCH AT SEA

At the invitation of William W. Rubey, Chairman of the National Research Council, an ad hoc committee met at the Academy–Research Council on June 8 to discuss certain draft articles respecting sovereignty over the continental shelf proposed by the International Law Commission of the United Nations.

The problem discussed by the ad hoc committee was called to President Bronk's attention by Maurice Ewing who was concerned that the draft articles, if adopted, might unnecessarily restrict oceanographic research conducted for purely scientific purposes. They would give a coastal state sovereign rights over the continental shelf, though not over the superjacent waters "for the purpose of exploring and exploiting its natural resources." President Bronk communicated with the United States Ambassador to the United Nations and subsequently with the Assistant Secretary of State for United Nations Affairs, offering the services of the Academy–Research Council in exploring the problem raised by Dr. Ewing. The offer tendered by the President of the Academy was accepted and the ad hoc committee was formed.

The Committee members, under the chairmanship of Dr. Rubey, were:

Maurice Ewing, Lamont Geological Observatory, Columbia University; Richard H. Fleming, University of Washington; Alfred Redfield, Woods Hole Oceanographic Institution; Roger Revelle, Scripps Institution of Oceanography; and William Terry and Lionel A. Walford, both of the U. S. Fish and Wildlife Service. Representatives of the Departments of State and Defense and of the National Science Foundation participated in the discussions.

The deliberations of the ad hoc committee resulted in a resolution and statement which were forwarded to the Governing Board of the Academy–Research Council for review and appropriate disposition. These documents as modified and approved by the Governing Board on June 20 are:

Resolution

WHEREAS scientific knowledge is essential to the effective exploitation of natural resources, and scientific knowledge expands most rapidly when conducted with freedom from restraint,

WHEREAS the physical and biological regime of the sea is at present little known, and expansion of knowledge on this subject will be of value to all nations,

WHEREAS the interpretation of phenomena of the sea must include knowledge of the sea bottom as well as of the superjacent waters, and

WHEREAS bona fide scientific research by scientists of any nation may prove of great value in the exploitation of natural resources if the findings are freely published,

THEREFORE, we urge that the traditional freedom of scientific research at sea be protected by international agreement.

FURTHERMORE, we are concerned that the draft articles on the continental shelf prepared by the International Law Commission of the United Nations (Fifth Session, 1 June–14 August 1953) do not adequately preserve the freedom of scientific research on the continental shelf.

Statement

We respectfully urge that the draft articles on the continental shelf contained in the report of the International Law Commission of the United Nations (Fifth Session, 1 June–14 August 1953) be modified to insure that fundamental scientific research on the continental shelf that is not harmful to natural resources can be freely conducted by scientists of any nation.

We respectfully suggest that an additional article be incorporated for this purpose, somewhat as follows:

"The rights of the coastal State over the continental shelf do not affect the traditional right of scientists of any nation to conduct fundamental scientific research with the intent of open publication."

We also suggest that the sovereign rights of coastal nations for exploration of the continental shelf, as referred to in the draft articles of the International Law Commission, be limited to exploration of natural resources with intent of exploitation of those resources.

These points apply with equal cogency to the waters over the continental shelf and to the deeper waters within 100 miles of the territorial sea of the coastal state. We therefore also suggest that the draft articles covering the basic aspects of the international regulation of fisheries, prepared by the International Law Commission, should in their final form include provision to insure the free conduct by scientists of any nation of fundamental research which is intended for open publication.

Moreover, we suggest that measures contemplated by the Organization of American States for the juridical control of the continental shelf and the coastal waters should not be such as to restrain free research by scientists of any nation.

The above resolution and statement have been forwarded to the United States Secre-

tary of State and to the Secretary General of the International Council of Scientific Unions. It is hoped that the views expressed therein will help to call attention to a problem which concerns the scientists of this and other countries and will contribute to the formulation of an international agreement which will protect the traditional freedom of scientific research at sea.

Meanwhile, the Academy–Research Council has offered to lend further assistance as the matter proceeds.

DEDICATION OF THE PULKOVO OBSERVATORY

Dirk Brouwer, Director of the Yale University Observatory, and J. J. Nassau, Director of the Warner and Swasey Observatory at the Case Institute of Technology, attended the dedication of the Pulkovo Observatory near Leningrad, USSR, May 20–22. Astronomers from many countries were in attendance. Following the dedication exercises, the astronomers participated in scientific conferences which had been arranged in honor of the occasion.

The dedication program and the scientific meetings were arranged by the Soviet Academy of Sciences. The visiting astronomers were guests of the Soviet Union during their stay of approximately two weeks in the country. During this period they had opportunity to see many of the scientific and educational institutions including several in the capital city of Moscow.

SIXTH INTERNATIONAL ANATOMICAL CONGRESS

The Sixth International Anatomical Congress will be held at Paris, July 25–30, 1955. The stated objective of this and previous congresses in the series which commenced in 1905, are to bring together anatomists from different parts of the world for the purpose of discussing research, teaching, and international nomenclature. The Congress sponsors the International Commission on Anatomical Nomenclature currently under the chairmanship of George W. Corner of the Carnegie Institution of Washington, Baltimore, Maryland.

Arrangements for the 1955 Congress are in charge of Professor Gaston Cordier, 45, Rue des Saints-Pères, Paris (6e) to whom all inquiries should be addressed.

PACIFIC SCIENCE BOARD

George P. Murdock, Chairman of the Department of Anthropology at Yale University, has been appointed Chairman of the Pacific Science Board to succeed Knowles A. Ryerson, who has served in that capacity since the Board's establishment in December 1946. Dr. Murdock has been a member of the Board as well as Vice-Chairman. He is President-Elect of the American Anthropological Association and has been active in the Pacific area where he served in the Navy during World War II. He was a Military Government Officer on Okinawa during the occupation and played a primary part in planning the program of the Pacific Science Board for a coordinated investigation of Micronesian anthropology. He himself led the five-man Yale team that made an anthropological study of Truk in 1947.

Knowles A. Ryerson will continue to serve as a member of the Board and as the National Research Council representative on the Council of the Pacific Science Association.

Two new Board members have been appointed—Marston Bates, University of Michigan, and Athelstan Spilhaus, University of Minnesota. Dr. Bates participated in the Board's ecological study of Ifaluk Atoll in the Western Carolines in 1952, and Dr. Spilhaus has long been active in Pacific meteorological research in cooperation with the Department of the Air Force; he is also Chairman of the Standing Committee on Pacific Meteorology of the Pacific Science Association.

DIRECTORY OF INTERNATIONAL SCIENTIFIC ORGANIZATIONS

The second revised edition of the Directory of International Scientific Organizations, containing entries on 264 organizations, was published recently by Unesco. It may be purchased from the Columbia University Press, 2960 Broadway, New York 27, New York. Price $2.50.

COMMITTEE ON INTERNATIONAL SCIENTIFIC UNIONS

A special meeting of the Committee on International Scientific Unions was held at the Academy–Research Council on May 24 to discuss various matters pertaining to United States participation in international organizations and to brief United States delegates to forthcoming general assemblies of international scientific unions to which the United States adheres through the Academy–Research Council. Attendance at the meeting included the chairmen of USA National Committees of the international unions which are members of the International Council of Scientific Unions (ICSU), and one or more members of each of the United States delegations to the 1954 general assemblies of the following unions: Pure and Applied Physics, Scientific Radio, Mathematics, Crystallography, and Geodesy and Geophysics. Invited guests included representatives from the National Science Foundation and from the Office of the Science Adviser, Unesco Relations Staff, and Division of International Conferences of the Department of State.

In the absence of John A. Fleming, Chairman of the Committee, Lloyd V. Berkner, President of Associated Universities, Inc., and a member of the Policy Committee of the Office of International Relations, presided. Topics discussed included the following: *1*) Organization for United States Participation in International Scientific Unions, *2*) Financial Support for Delegates and Others Attending International Scientific Meetings, *3*) Holding International Scientific Meetings in the United States, *4*) International Organization for Scientific Activity, *5*) Financial Support for ICSU and its Individual Unions, and *6*) Duties and Responsibilities of United States and Academy–Research Council Delegations.

The Committee agreed that it would be desirable for all national committees of ICSU unions to draft short constitutions which would establish the formal relationships between these committees and the Academy–Research Council. Several members of the Committee believed that a few basic points might be common to all constitutions, such as the procedures for selection and rotation of membership and the criteria to be followed in selection of delegations to represent the United States at international meetings.

Special attention was called to the Exchange-Visitor Program sponsored by the Department of State which can be used by the Academy–Research Council or other sponsoring organizations to facilitate the attendance of foreign scientists at meetings held in the United States. The Committee agreed that visa difficulties associated with attendance of foreign scientists at meetings in this country were frequently exaggerated and that the holding of international meetings in the United States should be encouraged.

With respect to the proposed reorganization of ICSU, the Committee opposed adoption of the federation plan proposed by Alexander von Muralt, Past-President of ICSU, but saw no objection to voluntary federation on the part of ICSU unions. It favored prompt admission of new unions by ICSU whenever such unions meet the criteria set forth in the constitution of ICSU.

The Committee strongly recommended an increase in the annual national dues to ICSU and to each of its unions. It also endorsed Unesco support of ICSU projects which further the objectives of Unesco.

Duties and responsibilities of delegates to international scientific meetings were fully discussed. The major points covered in this discussion have been incorporated in a pamphlet entitled "Information for United States and Academy – Research Council Delegates" which has been sent to all members of USA National Committees and to all delegates to general assemblies of ICSU unions meeting this year.

CONFERENCE ON EDUCATION FOR RESEARCH IN PHYSICS

As a result of decisions reached at the recent annual meeting of the Division of Physical Sciences, the Division is now exploring the first steps toward the organization and conduct of a national Conference on Education for Research in Physics with the aid and cooperation of the American Institute of Physics and its member societies.

FOREIGN RESEARCH SCIENTISTS PROGRAM

Since the last report of the Foreign Research Scientists Program was published in NEWS REPORT (*see* Vol. 4, No. 2), ninety-six additional awards have been made. The following list has been arranged by country of origin of the fellowship recipients and indicates the field and location of their research:

From Austria

Ferdinand Cap, Theoretical physics–Stanford University, with L. I. Schiff.

Heinrich Karl Eichhorn, Astronomy–Leander McCormick Observatory with Harold L. Alden.

Konrad Keck, Cytology–University of Wisconsin, with Hans Ris.

Friedrich Max Kohler, Physical chemistry–University of North Carolina, with Oscar K. Rice.

Josef Schmid, Mathematics–Princeton University, with A. W. Tucker.

Erhard Schnell, Inorganic chemistry–Harvard University, with Eugene G. Rochow.

Alfred Slibar, Mechanical engineering–Massachusetts Institute of Technology, with J. P. Den Hartog.

Wolfgang Wieser, Zoology–Plant Industry Station, Beltsville, with G. Steiner.

From Belgium

Ivan Ernest Gillet, Organic chemistry–University of California, Los Angeles, with T. A. Geissman.

Frans Snacken, Geography–University of Maryland, with William Van Royen.

Roger Louis Storck, Microbiology–University of California, Berkeley, with Roger Y. Stanier.

Albert Gustave Velghe, Astronomy–Harvard College Observatory, with Bart J. Bok.

From Denmark

Thor Bak, Physical chemistry–Columbia University, with Victor K. La Mer.

George Bruun, Telecommunication engineering–Stanford University, with Joseph Pettit.

Willi Dansgaard, Mass spectrometry–University of Chicago, with Harold C. Urey.

Eyvind Frederiksen, Mechanical engineering–Stanford University, with J. N. Goodier.

Knud Klitgård, Plant Breeding—The Great Western Sugar Company, with H. E. Brewbacker.

Hans Petersen, Horticulture–Cornell University, with Richard C. Andreasen.

Lene Rasmussen, Inorganic chemistry–University of Rochester, with Albert Noyes, Jr.

From France

Gilbert Henri Amat, Molecular physics–Ohio State University, with Harald H. Nielsen.

Jacques Camille Behr, Polymer chemistry–Polytechnic Institute of Brooklyn, with Herman F. Mark.

Albert Bieder, Biochemistry–University of Wisconsin, with Laurens Andersen.

Robert Boulitrop, Chemistry–Columbia University, with Erwin H. Amick.

Jacques Marie Celerier, Chemical engineering–Illinois Institute of Technology, with V. I. Komarewsky.

Michel Hug, Fluid mechanics–State University of Iowa, with J. W. Howe.

Henri Jean Maget, Organic chemistry—University of Michigan, with Donald L. Katz.

Christian Maurette, Geophysics–University of Texas, with Darrell S. Hughes.

Robert Pierre Meunier, Nuclear physics–Massachusetts Institute of Technology, with L. S. Osborne.

Denise Mongin, Paleontology–Johns Hopkins University, with Ernst Cloos.

Michel Montu, Organic chemistry–University of Akron, with Maurice Morton.

Anne-Marie Pilon, Optics–Johns Hopkins University, with G. H. Dieke.

Henri Louis Rosano, Physical chemistry–Columbia University, with Victor K. La Mer.

Maurice Albert Stupfel, Physiology–National Heart Institute, with Bernard B. Brodie.

From Italy

Filippo Accascina, Physical chemistry–Brown University, with Charles A. Kraus.

Angelo Bianchi, Genetics–Harvard University, with Paul Mangelsdorf.

Giorgio Ceragioli, Technology of cellulose—Forest Products Laboratory, Madison, Wis., with G. H. Chidester.

Giovanni Chieffi, Biology–Wayne University, with Dominic L. De Giusti.

Mario Cola, Mineralogy–Pennsylvania State University, with O. F. Tuttle.

Luigi Dadda, Electrical engineering—California Institute of Technology, with G. D. McCann.

Antonio Fava, Radiochemistry–University of Utah, with Henry Eyring.

Italo Filosofo, Nuclear physics–University of Illinois, with D. W. Kerst.

Francesco Francini, Geology–Princeton University, with John C. Maxwell.

Aldo Luigi Gilardini, Microwave engineering–Massachusetts Institute of Technology, with Sanborn C. Brown.

Vincenzo Grasso, Plant pathology–University of Minnesota, with J. J. Christensen.

Antonio Iliceto, Organic chemistry–University of Minnesota, with William E. Parham.

Oscar Masi, Metallurgy–Carnegie Institute of Technology, with Massoud T. Simnad and Harold W. Paxton.

Franco Mazzetti, Radiochemistry–University of California at Berkeley, with Melvin Calvin.

Avito Monaci, Organic chemistry–Polytechnic Institute of Brooklyn, with C. G. Overberger.

Fiorenzo Paronetto, Pathological anatomy–University of Utah, with B. V. Jager.

Giovanni Prati, Macromolecular chemistry–Polytechnic Institute of Brooklyn, with H. F. Mark.

Carlo Romano, Pharmacology–University of California Medical Center, San Francisco, with Hamilton H. Anderson.

Francesco Russo, Horticulture–University of California, with W. S. Stewart and L. J. Klotz.

Camillo Sales, Sugar beet culture—Plant Industry Station, Beltsville, with H. M. Tysdal.
Mario Verde, Nuclear physics—The Institute for Advanced Study, with Robert Oppenheimer.
Giulio Zinna, Biological control of insects—University of California, with C. P. Clausen.

From The Netherlands

Edmund W. J. de Marr, Pharmacology—University of Illinois, with Klaus R. Unna.
Geertruida Janetta Thorbecke, Histology—University of Notre Dame, with James Reyniers.
Sibergina Wagenaar, Plant physiology—Washington University, with Barry Commoner.
Andre Wegener Sleeswyk, Mechanical engineering-Yale University, with Harding Bliss.
Martinus Witkamp, Microbiology—Rutgers University, with Selman A. Waksman.
Jan Hendrik Zwart, Geology—University of Washington, with G. E. Goodspeed.

From Norway

Sven D. Svendsen, Building research—National Bureau of Standards, with Douglas E. Parsons.
Nils Vogt-Nilsen, Electronic physics—University of Illinois, with Donald W. Kerst.

From Turkey

Veli Aytekin, Metallurgy—Carnegie Institute of Technology, with Gerald T. Horne.
Lütfü Mehmet Karasoy, Textile chemistry—Textile Research Institute, Princeton, with J. H. Dillon.
Mehmet Nimet Ozdas, Mechanical engineering—Massachusetts Institute of Technology, with B. G. Rightmire.
Tarik Özker, Electrical engineering—University of Illinois, with M. B. Reed.
A. Nail Payza, Biochemistry—National Heart Institute, with Christian Anfinsen.
Hüsevin Pektas, Oceanography—University of Washington, with Richard H. Fleming.

From the United Kingdom

David Richard Bowsher, Biophysics—Harvard Medical School, with William H. Sweet.
Leonardo Castillejo, Physics—Cornell University, with Hans A. Bethe.
Bryan P. Coles, Physics—Carnegie Institute of Technology, with R. Smoluchowski.
Francis Medcalf Dean, Organic chemistry—University of California at Los Angeles, with T. A. Geissman.
Russell F. Evans, Organic chemistry—Purdue University, with Herbert C. Brown.
Vyvyan A. Knivett, Biochemistry—University of Wisconsin, with Philip P. Cohen.
George Milnes, Electrical engineering—U. S. Naval Ordnance Laboratory, with R. D. Bennett.
John Owen, Microwave spectroscopy—University of California at Berkeley, with C. Kittel.
Eric Malcolm Thain, Organic chemistry—University of California at Berkeley, with Melvin Calvin.

From West Germany

Oswald Frank Ahnert, Geography—University of Maryland, with William Van Royen.
Erwin Bodenstedt, Nuclear physics—Cornell University, with Robert R. Wilson.
Joseph Dörner, Pharmacology—Harvard Medical School, with Otto Krayer.
Ernst Freese, Physics—University of Chicago, with Gregor Wentzel.
Ulrich Gonser, Physical chemistry—University of Illinois, with Frederick Seitz.
Hans Grisebach, Organic chemistry—University of California at Berkeley, with Melvin Calvin.
Wilhelm Harder, Zoology—South Pacific Fishery Investigations Branch of the Fish and Wildlife Service, Stanford, Calif., with John C. Marr.
Ernst Helmreich, Biochemistry—Washington University, with Carl F. Cori.
Gustav Hiebel, Mechanical engineering—University of Minnesota, with E. R. G. Eckert.
Gerhart Hotz, Virus research—Johns Hopkins University, with Frederik B. Bang.
Hans-Georg Kmoch, Agriculture—University of Nebraska, with E. F. Frolik.
Walter H. Massion, Physiology—University of Rochester, with Wallace O. Fenn.
Hermann Prell, Botany—Duke University, with Paul J. Kramer.
Hans Ross, Virus pathology—University of Wisconsin, with G. H. Rieman.
Ulrich Wilhelm Schiedt, Biochemistry—University of Pennsylvania, with Samuel Gurin.
Walter Strohmeier, Physical chemistry—University of Michigan, with G. B. B. M. Sutherland.
Wolfgang Trautwein, Physiology—Johns Hopkins Medical School, with Stephen Kuffler.

TAXONOMY CODE MEETING

On June 22, a preliminary meeting was held at the Chemical-Biological Coordination Center to explore the possibility and desirability of developing a unified system for coding plant and animal names. Attending the meeting were representatives of the Center, the Library of Congress, the United States Department of Agriculture, and the Smithsonian Institution. The general discussion brought out that if a standard code were adopted, the numbers of symbols should be assigned through a central clearing house, which would also have other functions, such as maintaining a permanent file, answering general questions, and sending out cards containing code symbols and names. The work could be at least partially supported by the sale of the cards, in a manner similar to that followed by the Library of Congress.

It was decided that further study will be made to determine what groups or individuals are now maintaining files of data including the use of taxonomic entities by means of IBM, Key Sort, Remington-Rand, or other special coding and filing systems.

NEW COMMITTEE ON OPERATIONS ANALYSIS

In response to a request from the Department of Defense, the National Academy of Sciences–National Research Council is proceeding with the organization of a group of analysts to work in cooperation with the Weapons Systems Evaluation Group in the office of the Joint Chiefs of Staff. In addition to the proposed studies, it is contemplated that the group will be available to assist a number of other Academy–Research Council activities having problems of an operations or systems analysis nature, and that they will join with local Washington groups in sponsoring a series of seminars on the techniques, procedures, and methodology of operations analysis.

A Committee under the chairmanship of E. Bright Wilson, Jr., Harvard University, is being assembled to formulate the program and guide the activities of the new group. Members appointed to date include James B. Fisk, Bell Telephone Laboratories, Inc.; H. P. Robertson, California Institute of Technology; Lauriston Taylor, National Bureau of Standards; and Warren Weaver, The Rockefeller Foundation.

UNITED STATES REPRESENTATION AT INTERNATIONAL SCIENTIFIC MEETINGS

Upon the recommendation of appropriate committees and endorsement by cognizant Divisions, the President of the National Academy of Sciences and the Chairman of the National Research Council have appointed delegations to represent the Academy–Research Council at ten international scientific meetings to be held in 1954. In addition the Chairman of the National Research Council, upon the invitation of the Department of State, has nominated persons to serve on United States delegations to six of these meetings.

Composition of the Academy–Research Council delegations is given below. Persons marked with an asterisk are United States delegates appointed by the Department of State. In each instance, the Chairman of the Academy–Research Council delegation serves also as Chairman of the United States delegation.

Eighth International Botanical Congress, Paris, France, July 2–14, 1954

RALPH E. CLELAND, Indiana University, *Chairman*
DONOVAN S. CORRELL, U. S. Department of Agriculture
KATHERINE ESAU, University of California
SAMUEL L. MEYER, Florida State University
WILLIAM J. ROBBINS, New York Botanical Garden
WILLIAM C. STEERE, Stanford University
JOHN A. STEVENSON, U. S. Department of Agriculture
WILLIAM R. TAYLOR, University of Michigan
KENNETH V. THIMANN, Harvard University

Eighth General Assembly of the International Union of Pure and Applied Physics, London, England, July 6–10, 1954

*JOHN C. SLATER, Massachusetts Institute of Technology, *Chairman*
*HENRY A. BARTON, American Institute of Physics
*KARL K. DARROW, Bell Telephone Laboratories, Inc.
WILLIAM V. HOUSTON, Rice Institute
ELMER HUTCHISSON, Rice Institute
ROBERT E. MARSHAK, University of Rochester
LADISLAUS L. MARTON, National Bureau of Standards
*HARALD H. NIELSEN, Ohio State University
RAYMOND J. SEEGER, National Science Foundation
ROMAN SMOLUCHOWSKI, Carnegie Institute of Technology
*JOHN A. WHEELER, Princeton University

Third General Assembly of the International Union of Crystallography, Paris, France, July 21–28, 1954

*L. O. BROCKWAY, University of Michigan, *Chairman*
M. J. BUERGER, Massachusetts Institute of Technology
J. D. H. DONNAY, Johns Hopkins University
ISIDOR FANKUCHEN, Polytechnic Institute of Brooklyn
DAVID HARKER, Polytechnic Institute of Brooklyn
*A. L. PATTERSON, Institute for Cancer Research
RAYMOND PEPINSKY, Pennsylvania State University
*B. E. WARREN, Massachusetts Institute of Technology
*RALPH W. G. WYCKOFF, American Embassy, London
*WILLIAM H. ZACHARIASEN, University of Chicago

Second Congress of the Pan Indian Ocean Association, Perth, Australia, August 17–24, 1954

JOHN WEST WELLS, Cornell University

Fourth Session of the General Assembly of the International Union for the Protection of Nature, Copenhagen, Denmark, August 25–Sept. 3, 1954

HAROLD J. COOLIDGE, National Research Council
EDWARD H. GRAHAM, U. S. Department of Agriculture

Eleventh General Assembly of the International Scientific Radio Union The Hague, The Netherlands, August 23–September 2, 1954

°Arthur H. Waynick, Pennsylvania State University, *Chairman*
Dana K. Bailey, National Bureau of Standards
Ross Bateman, National Bureau of Standards
Lloyd V. Berkner, Associated Universities, Inc.
Hendrik W. Bode, Bell Telephone Laboratories, Inc.
H. G. Booker, Cornell University
°Charles R. Burrows, General Electric Advanced Electronics Center
T. J. Carroll, Massachusetts Institute of Technology
Marvin Chodorow, Stanford University
Lan Jen Chu, Massachusetts Institute of Technology
J. T. deBettencourt, Massachusetts Institute of Technology
°J. Howard Dellinger, Radio Corporation of America
Frederic H. Dickson, Signal Corps, Ft. Monmouth
Harold E. Dinger, Naval Research Laboratory
C. T. Elvey, University of Alaska
Harold I. Ewen, Harvard College Observatory
Rufus G. Fellers, Naval Research Laboratory
F. J. Gaffney, Fairchild Guided Missiles Division
I. H. Gerks, Collins Radio Company
N. C. Gerson, Air Force Cambridge Research Center
J. J. Gibbons, Pennsylvania State University
°William E. Gordon, Cornell University
John P. Hagen, Naval Research Laboratory
Albert E. Heins, Carnegie Institute of Technology
Robert A. Helliwell, Stanford University
C. C. Hurd, International Business Machines Corporation
Edward C. Jordan, University of Illinois
Joseph Kaplan, University of California
Karl Klotter, Stanford University
Wilhelm Magnus, New York University
Nathan Marcuvitz, Polytechnic Institute of Brooklyn
Donald H. Menzel, Harvard College Observatory
Julius P. Molnar, Bell Telephone Laboratories, Inc.
Millett G. Morgan, Dartmouth College
M. M. Newman, Lightning and Transients Research Institute
Benjamin Nichols, Cornell University
K. A. Norton, National Bureau of Standards
Bernard M. Oliver, Hewlett Packard Company
Leif Owren, Carnegie Institution of Washington
W. Pfister, Air Force Cambridge Research Center
Victor H. Rumsey, Ohio State University
Hari K. Sen, National Bureau of Standards
Alan H. Shapley, National Bureau of Standards
William G. Shepherd, University of Minnesota
Samuel Silver, University of California
S. Fred Singer, University of Maryland
John B. Smyth, Navy Electronics Laboratory
R. C. Spencer, Air Force Cambridge Research Center
A. W. Sullivan, University of Florida
William G. Tuller, Melpar, Inc.
David F. Tuttle, Stanford University
Victor Twersky, New York University
A. van der Ziel, University of Minnesota
Ernst Weber, Polytechnic Institute of Brooklyn
°Harry W. Wells, Carnegie Institution of Washington
J. B. Wiesner, Massachusetts Institute of Technology

Second General Assembly of the International Mathematical Union, The Hague, The Netherlands, August 31–September 1, 1954

°Marshall H. Stone, University of Chicago, *Chairman*
°A. A. Albert, University of Chicago
°Carl Einar Hille, Yale University
°Saunders MacLane, University of Chicago
°Edward J. McShane, University of Virginia

International Congress of Mathematicians, Amsterdam, The Netherlands, September 2–9, 1954

A. A. Albert, University of Chicago, *Chairman*
Carl Einar Hille, Yale University
John R. Kline, University of Pennsylvania
Saunders MacLane, University of Chicago
Edward J. McShane, University of Virginia
Deane Montgomery, Institute for Advanced Study
John von Neumann, Institute for Advanced Study
John B. Rosser, Cornell University
Marshall H. Stone, University of Chicago

Eighth International Congress of Cell Biology, Leiden, The Netherlands, September 1–7, 1954

°E. Newton Harvey, Princeton University, *Chairman*
°J. S. Nicholas, Yale University
°Paul Weiss, University of Chicago

Tenth General Assembly of the International Union of Geodesy and Geophysics, Rome, Italy, September 14–25, 1954

°James B. Macelwane, S. J., St. Louis University, *Chairman*
°Leason H. Adams, Carnegie Institution of Washington
John N. Adkins, Office of Naval Research
James Balsley, U. S. Geological Survey
Roland F. Beers, Geotechnical Corporation
K. Hilding Beij, National Bureau of Standards
Hugo Benioff, California Institute of Technology
°Lloyd V. Berkner, Associated Universities, Inc.
Francis Birch, Harvard University
°J. A. B. Bjerknes, University of California
Harry F. Blaney, U. S. Department of Agriculture

*Walter H. Bucher, Columbia University
H. R. Byers, University of Chicago
Phil E. Church, University of Washington
Earl Droessler, Office of the Assistant Secretary of Defense
Maurice Ewing, Columbia University
Richard H. Fleming, University of Washington
*Beno Gutenberg, California Institute of Technolgy
Ross R. Heinrich, St. Louis University
A. J. Hoskinson, U. S. Coast and Geodetic Survey
Floyd Hough, Army Map Service
E. O. Hulburt, Naval Research Laboratory
Woodrow C. Jacobs, Air Weather Service
*Joseph Kaplan, University of California
*Walter D. Lambert, Ohio State University
Walter B. Langbein, U. S. Geological Survey
John Putnam Marble, Simthsonian Institution
Walter H. Munk, Scripps Institution of Oceanography
*F. W. Reichelderfer, U. S. Weather Bureau
Roger R. Revelle, Scripps Institution of Oceanography
C.-G. Rossby, Institute of Meteorology, Stockholm, Sweden
A. Nelson Sayre, U. S. Geological Survey
M. O. Schmidt, University of Illinois
Louis B. Slichter, University of California
Waldo E. Smith, American Geophysical Union
Athelstan Spilhaus, University of Minnesota
H. Kirk Stephenson, National Science Foundation
R. F. A. Studds, U. S. Coast and Geodetic Survey
Harold C. Urey, University of Chicago
Victor Vacquier, New Mexico Institute of Mining and Technology
Jean Verhoogen, University of California
Charles A. Whitten, U. S. Coast and Geodetic Survey
Harold G. Wilm, New York State College of Forestry

* United States delegate appointed by the Department of State.

INTERNATIONAL PATHOLOGICAL MEETINGS

The International Society of Clinical Pathology, the International Society of Geographic Pathology, and the International Association of Medical Museums will meet concurrently in Washington, D. C., from September 6 to 10. The planning committee expects approximately 140 overseas guests from 31 countries. Many of these are invited speakers.

The program of the Conference on Geographic Pathology will be devoted entirely to cancer, that of the Congress of Clinical Pathology will include all aspects of clinical pathology, while the meetings of the International Association of Medical Museums will emphasize the role of pathology in medical education and the teaching of pathology and clinical pathology.

Following the joint opening session of the three organizations, the College of American Pathologists will sponsor a symposium on diseases caused by fungi. There will be two joint scientific sessions, one on the geographic distribution of cancer and another on the geographic distribution of diseases other than cancer. The American Society of Clinical Pathologists will conduct the regular seminar on the day after the Congress, September 11. The subject will be "Diseases of the Skin" and all overseas registrants will be guests of the Society.

Robert A. Moore, President of the International Society of Geographic Pathology and Dean of the Washington University School of Medicine, St. Louis, Mo., is serving as Chairman of the Congress Committee on General Arrangements. Harold Stewart, Chief of the Laboratory of Pathology at the National Institutes of Health, is Chairman of the Program Committee.

RESIDUAL STRESSES

The Committee on Residual Stresses announces a new publication entitled *Residual Stresses in Metals and Metal Construction.* Prepared under the guidance of the Committee for the interagency Ship Structure Committee, this monograph consists of twenty-two papers contributed by specialists in the field from here and abroad. William R. Osgood, Illinois Institute of Technology, served as editor.

Residual stresses may be defined as those existing in bodies when no external forces are acting. They may arise in structures or machine elements as a result of welding, machining, or other fabricating operations. The interest of the Ship Structure Committee was prompted by the possible influence of these stresses on failures in welded steel merchant ships. The profound lack of knowledge on the subject is best indicated by the conflicting opinions held by persons of recognized ability in the field. The present monograph is an attempt to resolve some of these conflicts.

GOVERNMENT-INDUSTRY RESEARCH COMMITTEE

The National Academy of Sciences–National Research Council has been asked by both industry and Government to establish within the Academy–Research Council framework a committee to deal with the common interests and the relationships of industrial and governmental research, particularly in the area of applied research.

Conferences between industrial and governmental research executives and directors, called by the Academy–Research Council, recommended to the Chairman of the National Research Council that a small committee be organized to further explore the needs of and to consider methods for developing better acquaintance and understanding between Government and industry research leaders. As a result the Government-Industry Research Committee has been organized with the following membership:

EDGAR C. BAIN, United States Steel Corporation, *Chairman*
ALLEN V. ASTIN, National Bureau of Standards
D. P. BARNARD, Deputy Assistant Secretary of Defense, Research and Development
RALPH BROWN, Bell Telephone Laboratories, Inc.
RALPH CONNOR, Rohm & Haas Company
HUGH L. DRYDEN, National Advisory Committee for Aeronautics
PAUL D. FOOTE, Gulf Research and Development Company
G. E. HILBERT, Agricultural Research Service, U. S. Department of Agriculture
RANDOLPH MAJOR, Merck & Company, Inc.
ROY C. NEWTON, Swift and Company
ALAN T. WATERMAN, National Science Foundation

The Committee held its first meeting at the Academy–Research Council on June 22, 1954, and expressed its readiness and desire to receive suggestions on specific research areas in which there appear to be needs for closer acquaintance and more complete understanding between Government and industry. The Committee further expressed its belief that in many areas of research wholly effective contacts already exist. The Committee resolved that the Academy–Research Council was in an especially advantageous position to arrange liaison meetings between appropriate representatives wherever a need for closer coordination was indicated.

GRANTS IN CANCER RESEARCH

The Committee on Growth of the National Research Council, acting for the American Cancer Society, is accepting applications for grants-in-aid for cancer research in the United States. Applications received before October 1 will be considered during the winter, and grants recommended will become effective on July 1, 1955. Investigators now receiving support will be notified individually regarding application for renewal of their grants.

The Committee feels that an understanding of cancer depends upon a deeper insight into the nature of the growth process, normal and malignant. Therefore, the scope of the research program is broad and includes, in addition to clinical investigations on cancer, fundamental studies in the fields of cellular physiology, morphogenesis, genetics, virology, biochemistry, metabolism, nutrition, cytochemistry, physics, radiobiology, chemotherapy, endocrinology, and environmental cancer.

Application blanks and additional information may be obtained from the Executive Secretary, Committee on Growth, National Research Council, 2101 Constitution Avenue, Washington 25, D. C.

ANNUAL MEETING BUILDING RESEARCH INSTITUTE

The third annual meeting of the Building Research Institute was held at Hershey, Pa., May 23–25 with over 180 registrants. The cross-industry idea of the Institute was illustrated by the registration which included manufacturers of building materials (50), contractors and builders (13), associations and societies (12), building materials dealers (7), universities (5), research organizations (9), architectural and engineering firms (7), and trade associations (6). In order to broaden the scope of the Institute's activities, the membership qualifications are being revised so that membership is now open to corporations, partnerships, individuals, and business and professional associations and societies that are qualified by their interest in building research and by technical competence to contribute to the advancement of building technology.

The technical sessions of the 3-day meeting included the following panel discussions: *1*) Distribution as an industry research problem and its relation to technical research, 2) Current and proposed research on technical activities of the National Association of Home Builders Research Committee, 3) A look at the future of air-conditioning in large buildings, *4*) Changes in the making in architecture and their meaning for the building industry, 5) Research methods in the analysis of cost and performance of building components, and *6*) Industrial acoustics—a review of problems, research, and future developments.

Fred M. Hauserman, Acting President of the Institute, presided at the business meeting and annual banquet. The principal banquet speakers were Douglas Whitlock, Structural Clay Products Institute, and William H. Scheick, Executive Secretary of the Institute, who outlined the origin and development of the Building Research Advisory Board (BRAB) and the Building Research Institute. C. F. Rassweiler, Chairman of BRAB, described the new purposes and objectives for the Institute as the building industry's technical society.

LECTURING AND ADVANCED RESEARCH AWARDS UNDER THE FULBRIGHT ACT

The Committee on International Exchange of Persons of the Conference Board of Associated Research Councils is now accepting applications for awards under the Fulbright Act for university lecturing and advanced research for the academic year 1955–56 in Austria, Belgium and Luxembourg, Denmark, Egypt, Finland, France, Germany, Greece, Iraq, Italy, Japan, Netherlands, Norway, Pakistan, Sweden, and in the United Kingdom and Colonial Dependencies.

Almost three hundred awards are available covering all fields. The awards include round-trip transportation for the grantee and a maintenance allowance based on the cost of living in the host country, which may be adjusted to cover up to four accompanying dependents.

Application forms and information on specific openings and on the operation of the program may be obtained from the Committee on International Exchange of Persons, 2101 Constitution Avenue, Washington 25, D. C. The closing date for submitting applications is October 15, 1954. All applicants must be citizens of the United States.

UNESCO INTERNATIONAL ADVISORY COMMITTEES

The first meeting of the International Advisory Committee on Research in the Natural Sciences Program on Unesco was held at Paris, April 12–15. The Committee recommended significant changes in the 1955–56 draft program for the natural sciences and adopted several general policies to guide its implementation. One of the recommendations was that Unesco limit its scientific research program to a few important high priority projects which can be given sufficient financial support to insure substantial results.

The following members of the Advisory Committee attended the first meeting:

Australia—J. E. Cummins, Scientific Liaison Officer, representing I. Clunies Ross, Chairman, Commonwealth Scientific and Industrial Research Organization

Brazil—P. de Berredo de Carneiro, representing Admiral Alvaro Alberto, President of the National Research Council of Brazil

Denmark—H. M. Hansen, Rector of the University of Copenhagen

Egypt—R. Tourky, Chairman of the National Research Council of Egypt

France—Gaston DuPouy, Director of the National Center of Scientific Research

India—S. S. Bhatnagar, Director of the Council of Scientific and Industrial Research

Israel—S. Sambursky, Director, National Research Council of Israel

Japan—Naoto Kameyama, past Chairman of the Science Council of Japan, representing S. Kaya, present Chairman

Mexico—No representative

United Kingdom—D. C. Martin, Assistant Secretary, The Royal Society

U. S. A.—Wallace W. Atwood, Jr., Director, Office of International Relations, Academy–Research Council

Yugoslavia—A. Peterlin, Director, Institute of Nuclear Sciences, Ljubljana

Union of International Engineering Associations—L. Cambournac, President

Council of International Organizations of Medical Sciences—J. Maisin, President

International Council of Scientific Unions—B. Lindblad, President

Observers present included representatives of the Food and Agriculture Organization, World Meteorological Organization, World Health Organization, and the International Labor Organization.

The second meeting of the Advisory Committee is scheduled for July 1955.

Another Unesco advisory group, the International Advisory Committee on Arid Zone Research, held its seventh session at Paris May 4–7 to review and make recommendations on the 1955–56 draft program for arid zone research. It will hold its eighth session at New Delhi, India, in October 1954, in conjunction with the Symposium on Wind and Solar Energy, and its ninth session in New Mexico in April 1955 at the time of the International Arid Lands Symposium and Conference, currently being planned by the American Association for the Advancement of Science. Gilbert F. White, United States member of the Advisory Committee on Arid Zone Research, is Chairman of the organizing committee for the 1955 symposium and conference.

The following members of the Advisory Committee attended the Paris meeting, May 4–7.

Australia—B. T. Dickson, Retired Chief, Division of Plant Industry, Commonwealth Scientific and Industrial Research Organization
India—M. S. Thacker, Director, Indian Institute of Science, Bangalore
Italy—R. Pichi-Sermolli, Curator of the Herbarium, University of Florence
Mexico—Carlos Graef, Director of the Institute of Physics, Mexico, Alternate for Nabor Carrillo
Syria—M. S. Mazloum, Director of Irrigation and Hydraulic Power, Ministry of Public Works and Communications, Damascus
Turkey—C. A. Alagöz, Professor of Geography, University of Ankara
United Kingdom—H. G. Thornton, F. R. S., Head of Department of Soil Microbiology, Rothamsted Experimental Station, Harpenden, England
U. S. A.—Gilbert F. White, President of Haverford College, Pennsylvania

AMERICAN GEOLOGICAL INSTITUTE

The Governing Board of the National Academy of Sciences–National Research Council on June 20 approved the new constitution for the American Geological Institute. The constitution had been ratified previously by the member societies of the Institute.

ADVISORY COMMITTEE ON CIVIL DEFENSE

At the request of the Federal Civil Defense Administration (FCDA), the Governing Board of the Academy–Research Council has agreed to undertake the establishment of an Advisory Committee on Civil Defense. This Committee will "advise the FCDA on major scientific problems affecting the civil defense program, . . . recommend lines of investigation to be pursued to comprehend the scientific factors involved, and [determine] whether specific conclusions and hypotheses are soundly based on all available scientific evidence."

Committee activities began the first week in July with the appointment of Willard Bascom as Technical Director and the establishment of an office in the Dupont Circle Building. A veteran of numerous atomic tests, Mr. Bascom is on leave of absence from his usual duties as research engineer with the Scripps Institution of Oceanography at La Jolla, Calif.

CONFERENCE ON RADIATION BIOCHEMISTRY

An informal Conference on Radiation Biochemistry was held at Highland Park, Ill., May 13–15, under the sponsorship of the Committee on Nuclear Science. Approximately twenty-five chemists, biologists, and physicists, representing the leading universities and research laboratories throughout the country attended.

The proceedings of the conference are to be published and will be available through the Publications Office of the National Academy of Sciences–National Research Council in the late fall. The proceedings of the last conference, *Physical and Chemical Aspects of Basic Mechanisms in Radiobiology,* have been issued recently and are now for sale by the Publications Office (*see* May-June issue of NEWS REPORT, p. 52).

The members of the Subcommittee on Radiobiology who planned the conference and arranged the program are: Howard J. Curtis, Brookhaven National Laboratory, *Chairman;* Cornelius Tobias, University of California at Berkeley; John L. Magee, University of Notre Dame; and Harvey Patt, Argonne National Laboratories.

BLOOD AND RELATED PROBLEMS

After several years of development and evaluation, plastic transfusion equipment has now been endorsed for use with all blood, and eventually with all parenteral solutions, that are to be shipped overseas by the Armed Forces. This question was reviewed on May 7 by an ad hoc panel under the Subcommittee on Blood and Related Problems, and tentative specifications for procurement were approved. Familiarization trials will be carried out in military hospitals here and abroad. Among the advantages of this equipment are light weight, economy of storage space, freedom from breakage, and decrease in the danger of air embolism. Another is that in the field, where hooks or stands for hanging conventional bottles are not at hand, pressure may be obtained by slipping the plastic bag under the patient as he lies on the litter.

The Subcommittee has been following with interest the recent finding by one of its members, Clement A. Finch, and his associates that adding adenosine to the standard acid-citrate-dextrose (ACD) preservative solution will extend—and may even double—the allowable storage period for red blood cells. This is being actively explored and will be discussed, together with other pertinent problems, at a conference on red cell metabolism in October.

INTERNATIONAL GEOPHYSICAL YEAR 1957–58

A revised United States program for the International Geophysical Year (IGY) has been prepared by the U. S. National Committee and forwarded to the General Secretary of the Comité Spécial de l'Année Géophysique Internationale (CSAGI). Similar program documents have been prepared by all participating countries, which now number approximately thirty.

The CSAGI will meet at Rome, October 1–4 to examine the programs submitted by participating countries and to prepare a coordinated program to be carried out in 1957–58 through international cooperative efforts. Preceding the CSAGI meeting, various elements of the IGY program will be discussed at the General Assembly of the International Union of Geodesy and Geophysics. Members of the U. S. National Committee and its Program Coordination Group, planning to attend one or both of these meetings include:

JOSEPH KAPLAN, University of California, *Chairman*
A. H. SHAPLEY, National Bureau of Standards, *Vice Chairman*
N. C. GERSON, Air Force Cambridge Research Center, *Recording-Secretary*
HUGH ODISHAW, *Administrative Secretary*
L. H. ADAMS, Carnegie Institution of Washington
H. G. BOOKER, Cornell University
C. T. ELVEY, Geophysical Institute, Alaska
S. A. KORFF, New York University
WILLIAM MARKOWITZ, U. S. Naval Observatory
H. E. NEWELL, JR., Naval Research Laboratory
S. B. NICHOLSON, Mount Wilson Observatory
F. W. REICHELDERFER, U. S. Weather Bureau
GEORGE RIGSBY, Snow, Ice and Permafrost Research Establishment
E. B. ROBERTS, U. S. Coast and Geodetic Survey
J. A. SIMPSON, University of Chicago
S. F. SINGER, University of Maryland
E. H. SMITH, Woods Hole Oceanographic Institution
A. F. SPILHAUS, University of Minnesota
HARRY WEXLER, U. S. Weather Bureau
Ex-Officio members planning to attend:
WALLACE W. ATWOOD, JR., Academy–Research Council
LLOYD V. BERKNER, Associated Universities, Inc. and Vice-President of CSAGI
H. KIRK STEPHENSON, National Science Foundation, Liaison Representative

During the past few months while the U. S. National Committee has been preparing its revised program for the IGY, the National Science Foundation has been seeking financial support for the program from the United States Congress. The results of these efforts will be announced when Congress has taken action.

CONFERENCE TO STUDY PROGRAMS OF INTERNATIONAL EXCHANGE OF PERSONS

The various programs of international exchange of persons now in operation, both public and private, have been to a large extent post-war developments. For some time there has been a feeling that these programs need examination and thoughtful reconsideration now that the experiences from several years of operation are available. Although some researches on cross-cultural exchanges have been initiated and some of the major foundations are examining their own efforts in this field,

a general re-evaluation of all exchange activities has not been undertaken.

Sensing the need for some such re-evaluation, the Board of Foreign Scholarships of the Department of State last fall requested the Conference Board of Associated Research Councils to undertake the task. The Ford Foundation has provided $21,000 to the National Academy of Sciences on behalf of the Conference Board to meet the costs of preparing studies and holding a conference to consider the results.

Three major areas of interest will be explored, each by a specially selected committee. The first committee, under the joint chairmanship of Howard E. Wilson, Educational Policies Commission of the National Education Association, and John Gange, American Political Science Association, will examine the nature of present exchanges, the scope of various programs, geographic distribution of exchanges, both with respect to the United States and the rest of the world, and will attempt to evaluate the rationality and adequacy of present programs. They will also study the various agencies involved and their roles.

The second committee, under the chairmanship of Walter H. C. Laves, Indiana University, will examine stated aims, objectives, and purposes of such programs and will consider their appropriateness.

The third committee, under Mortimer Graves of the American Council of Learned Societies, will give major attention to the steps that may be taken and the information that may be necessary so that future programs can be made more effective and more comprehensive when desirable.

A staff, consisting of Robert M. Strozier and William Birenbaum both of the University of Chicago, will spend the summer months collecting the information which these committees will need for the completion of their tasks. A conference is being planned for the first week in December at Princeton at which time a number of persons with wide experience and interest in this area will be brought together with the members of the committees to examine the studies which will have been prepared. It is hoped that the proceedings of this conference when published will constitute a significant contribution to thought in this field of activity and will point the way to future studies and future courses of action.

The members of these three committees met at the Academy–Research Council on June 16 under the leadership of Robert Strozier. Work was outlined for the staff for the summer months, and plans were made for later meetings. It is expected that the committees will begin intensive work on their assignments by the first of September, when the necessary relevant information should be assembled.

NEW APPOINTMENTS
DIVISION OF EARTH SCIENCES

Richard Joel Russell, Dean of the Graduate School and Director of the Coastal Studies Institute of Louisiana State University, has been appointed Chairman of the Division of Earth Sciences for a two-year period beginning July 1. Dr. Russell succeeds Francis Birch of Harvard University who will serve as Past-Chairman.

Dr. Russell received his Ph.D. degree in structural geology from the University of California in 1926. In 1928 he went to Louisiana State University where he became assistant director of the School of Geology in 1944 and Dean of the Graduate School in 1949.

Well-known for his work in geomorphology and climatology, Dr. Russell is particularly interested in streams and deltas of the alluvial valleys and coastal regions. In 1937 he received the first Wallace W. Atwood award for studies in physical geography from the Association of American Geographers and, in 1948, served as President of the Association. Dr. Russell has been an official delegate to both the international geographical and international geological congresses and at present is a member of the Commission on Coastal Sedimentation of the International Geographical Union.

H. H. Hess, Princeton University, has been appointed Chairman-Designate of the Division of Earth Sciences to serve with Richard Joel Russell for a two-year period beginning July 1. Dr. Hess received his Ph.D. degree in geology from Princeton in 1932 and has been continuously associated

with the University since joining the faculty in 1934. Since 1948 he has been directing a program of geologic investigations of the Island Arc in the Caribbean and its equivalent extension in the Venezuelan Coast Range, a cooperative project sponsored jointly by the Office of Naval Research, the Venezuelan Geological Survey, and Princeton University. From 1948 to 1951 he served as Vice-Chairman of the Advisory Committee on Geophysics of the Office of Naval Research.

H. R. Gault, Executive Secretary of the Division for the past year, resigned effective July 1 and returned to his former position at Lehigh University where he expects to continue his work in economic geology and geochemistry.

CHAIRMAN APPOINTED IN DIVISION OF ANTHROPOLOGY AND PSYCHOLOGY

Harry F. Harlow, University of Wisconsin, became Chairman of the Division of Anthropology and Psychology on July 1, succeeding Harry L. Shapiro, who has served as Chairman for the past year.

Dr. Harlow, a psychologist, received his Ph.D. degree from Stanford University in 1930 and then began teaching at the University of Wisconsin where he has remained. In 1950 he became Science Adviser to the Department of the Army. A member of the American Psychological Association, the Midwestern Psychological Association, and Society of Experimental Psychologists, he was elected to the National Academy of Sciences in 1951. Dr. Harlow is especially known for his work on the learning theory, motivation theory, and cortical functions.

Dr. Shapiro, as *Past-Chairman*, will continue to serve as a member of the Executive Committee of the Division. Other members of the Executive Committee are the *Chairman*, Harry F. Harlow, and Carl I. Hovland, Yale University, and Charles Wagley, Columbia University.

NEW GRANTS FOR DISASTER STUDIES

In support of the work of the Committee on Disaster Studies, the Ford Foundation has made a grant of $194,400 to the National Academy of Sciences to be used over a three-year period. Approximately $25,000 of this amount will be used each year for basic research. The National Institute of Mental Health has made a one-year grant to the Academy of $27,486 in support of studies of human behavior during disaster.

RECORD OF MEETINGS

May	
1	USA National Committee, International Union of Pure and Applied Physics
	Division of Earth Sciences, Annual Meeting
	Committee on Geophysics
3	USA National Committee, International Scientific Radio Union
	Agricultural Board, Executive Committee, *Chicago, Ill.*
	Advisory Committee on Artificial Limbs
3–5	American Geophysical Union, Annual Meeting
7	Committee on Ophthalmology
	Ad hoc Panel on Transfusion Equipment
	Subcommittee on Blood and Related Problems
10	Subcommittee on the Cutaneous System
11	Committee on Control of Deterioration
	Committee on Tables of Constants and Numerical Data, Nuclear Data Group
12	Panel on Nickel Conservation in Gray Iron, *Cleveland, Ohio*

May		June	
12	Subcommittee on Toxicology	1	Panel on Gun Liner Materials
13	Food Protection Committee	3	Subcommittee on Atmospheric and Industrial Hygiene
	Division of Biology and Agriculture, Executive Committee		Pacific Science Board
13–15	Conference on Radiation Biochemistry, *Highland Park, Ill.*	4	Federal Construction Council, Advisory Committee, Task Group T-11
14	Federal Construction Council, Operating Committee	5	Committee on Army Medical Education
	Subcommittee on Animal Reservoirs and Vectors of Disease	7	Subcommittee on Waste Disposal
	American Institute of Biological Sciences, Annual Meeting		USA National Committee, International Union Against Cancer
15	Division of Biology and Agriculture, Annual Meeting	8	Committee on Sanitary Engineering and Environment
17	Subcommittee on Food Supply		Conference on International Law Proposals Concerning the Continental Shelf
	Ad hoc Panel on Study of Burns, *Cleveland, Ohio*	10	Highway Research Board, Executive Committee
18	Division of Engineering and Industrial Research, Annual Meeting	14–15	Committee on Toxicology
	Subcommittee on Personnel and Training	15–16	Traffic and Operations Department, *Chicago, Ill.*
	Committee for Research in Problems of Sex	16	Subcommittee on Toxicology
21	Committee on Dentistry		Planning Group for a Conference on the International Exchange of Persons Program
	Subcommittee on Biochemistry	17	Committee on Psychiatry
	Subcommittee on Clinical Investigation	17–18	Committee on Landslide Investigation, *Topeka, Kans.*
	Subcommittee on Etiology and Pathology	18–20	Committee on Disaster Studies, *New Pfaltz, N. Y.*
	Division of Medical Sciences, Executive Committee	20	National Academy of Sciences–National Research Council, Governing Board
	Symposium on Precooked Frozen Foods, *Chicago, Ill.*	21	Subcommittee on Nuclear Reactors, *Ann Arbor, Mich.*
22	Food and Nutrition Board, Executive Committee, *New York City*	22	Government-Industry Research Committee
	Division of Physical Sciences, Annual Meeting	22–24	Committee on Frost Heave and Frost Action in Soil, *Rye Beach, N. H.*
	Division of Medical Sciences, Annual Meeting	23	Special Panel for Utilization of Natural Gas in Saudi Arabia
23	Subcommittee on Cereal and Baked Products, *Denver, Colo.*	24–25	Committee on Growth, *New York City*
	Building Research Advisory Board, *Hershey, Pa.*	25–26	Subcommittee on Radiation Sterilization, *Los Angeles, Calif.*
	Building Research Institute, Board of Governors, *Hershey, Pa.*	26	Ad hoc Subcommittee to Evaluate the Armed Forces Food Research and Development Program, *Los Angeles, Calif.*
24	Committee on Photobiology	28	Committee on Tables of Constants and Numerical Data
	Committee on Cancer Diagnosis and Therapy	28–30	Committee on Naval Medical Research, *San Francisco, Calif.*
	Committee on International Scientific Unions	29	Committee on Foods, *Los Angeles, Calif.*
	Committee on Handbook of Biological Data		Committee on Construction and Use of Precise Globes and Spherical Maps
24–25	Building Research Institute, Annual Meeting, *Hershey, Pa.*		Panel on Guided Missile Materials.
25	Conference on Artificial Sweeteners		
	Committee on Definitions and Standards		
	Subcommittee on Shock		
29	Division of Mathematics, Annual Meeting		
	Subcommittee on Stress		

NEW PUBLICATIONS

Atoll Research Bulletin. Nos. 28–30 (bound in one volume). Pacific Science Board, National Academy of Sciences–National Research Council. May 1954. [60] p.

Better Laws for Better Highways. Highway Research Board Bulletin No. 88. Academy–Council Publication No. 316. 1954. 22 p. $0.45.

Concrete Resurfacing of Concrete Pavement in Various Stages of Deterioration. Highway Research Board Bulletin No. 87. Academy–Council Publication No. 313. 1954. 39 p. $0.60.

Directory of Hydrobiological Laboratories and Personnel in North America. Edited by Robert W. Hiatt. University of Hawaii Press. 1954. 324 p. $3.75.

Highway Finance. Selected References, 1950–1953. Highway Research Board Bibliography No. 16. Academy–Council Publication No. 315. 1954. 65 p. $0.75.

Nutrient Requirements for Dogs. Nutrient Requirements for Domestic Animals No. VIII. Academy-Council Publication No. 300. 1953. 30 p. $0.50.

Nutrient Requirements for Foxes and Minks. Nutrient Requirements for Domestic Animals No. VII. Academy–Council Publication No. 296. 1953. 30 p. $0.50.

Nutrient Requirements for Poultry. Nutrient Requirements for Domestic Animals No. 1 (Rev., January 1954). Academy–Council Publication No. 301. 1954. 27 p. $0.50.

Nutrition Under Climatic Stress. A symposium sponsored by the Quartermaster Food and Container Institute for the Armed Forces Quartermaster Research and Development Command. U. S. Quartermaster Corps. National Academy of Sciences, December 4–5, 1952. National Academy of Sciences–National Research Council. 1954. 203 p. (Available from Quartermaster Food and Container Institute for the Armed Forces, Chicago.)

Oceanographic Instrumentation. A conference held at Rancho Santa Fe, Calif., 21–23 June, 1952, under the sponsorship of the Office of Naval Research. Academy–Council Publication No. 309. [1954]. 233 p. $1.75.

Radiation Biology. Parts 1 and 2. High Energy Radiation. Edited by Alexander Hollaender. McGraw-Hill Book Co. 1954. 1265 p. $17.50.

Residual Stresses in Metals and Metal Construction. Edited by William R. Osgood. Reinhold Publishing Co. 1954. 363 p. $10.00.

Statistical Analysis in Chemistry and the Chemical Industry. John Wiley & Sons, Inc. 1954. 724 p.

Survey and Treatment of Marsh Deposits. Highway Research Board Bibliography No. 15. Academy–Council Publication 314. 1954. 95 p. $1.20.

Urban Traffic Congestion. Highway Research Board Bulletin No. 86. Academy–Council Publication No. 312. 1954. 39 p. $0.60.

Notice of Academy Meetings

NATIONAL ACADEMY OF SCIENCES

Autumn Meeting, Columbia University, November 8-10, 1954
Annual Meeting, Washington, D. C., April 25-27, 1955

NATIONAL ACADEMY OF SCIENCES—NATIONAL RESEARCH COUNCIL

Governing Board, Washington, D. C., October 10, 1954

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